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The Mineral Industry of Indonesia

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The Mineral Industry of Indonesia

By John C. Wu[1]

Indonesia was the world's second largest producer and exporter of liquefied natural gas (LNG) and the 10th largest producer and exporter of light- and medium-grade crude oil. Indonesia was also the second largest tin producer and exporter and was 1 of the top 10 producers and exporters of nickel in the Western World. Indonesia has emerged as an important producer of aluminum, cement, copper, nitrogen fertilizer, and steam coal in the Far East and Southeast Asia.

The further weakening of the world's oil prices and the imposition of production quotas by the 13-member Organization of Petroleum Exporting Countries (OPEC) limited and slowed down the growth of Indonesia's oil industry. The uncertainty over the new tax law introduced in 1984 and a lack of potentially promising exploration areas reportedly resulted in fewer production-sharing contracts signed, a lesser number of exploratory wells drilled, and less exploration expenditures. There were only two new production-sharing contracts signed in 1984 compared with three new contracts and one renegotiated contract in 1983. The number of exploratory wells drilled was about 240 compared with 264 in 1983, while the total exploration expenditures by foreign companies dropped to about $900 million[2] from $1.1 billion in 1983.

Despite the slowdown in Indonesia's oil exploration, several important oil and gas deposits were discovered in West Java, East Kalimantan, Central Sumatra, and in an offshore area of Madura in East Java. The Madura Oilfield reportedly has exploitable reserves of 22 million barrels of oil and 401 billion cubic feet of natural gas. The Indonesian Government and the Kodele Energy Co. Ltd. (Kodeco) of the Republic of Korea established a joint venture to develop and produce crude oil from the Madura Oilfield in 1985 and produce natural gas in 1987. Part of the crude oil will be exported to the Republic of Korea, and the natural gas will be processed into LNG for export, mainly to the Republic of Korea.

In early 1984, the $800 million expansion project at the Arun LNG plant was completed. By combining the Arun plant in North Sumatra and the Badak plant in East Kalimantan, Indonesia's annual output capacity of LNG rose to 13.9 million tons. A $300 million new contract was awarded to Japan Gasoline Co. of Japan to build the sixth LNG train at the Arun LNG plant with an annual capacity of 1.3 million tons to be completed by 1986.

Expansion projects at the Ombilin coal mine and at the Bukit Asam coal mine continued. Because of the delay in constructing the transport system for the Bukit Asam Mine, Indonesia's coal production was below planned output. Indonesia was expected to import about 1.5 million tons of steam coal from Australia during 1984-85 for the Suralaya powerplant that was scheduled for operation in West Java in early 1985.

Third-phase construction at the smelter of P.T. Indonesia Asahan Aluminum (INALUM) was completed by yearend. The 225,000-ton-per-year smelter reportedly was operating at 85% capacity owing to a lack of demand for primary aluminum by the domestic fabricating industries. The $750 million alumina project on Bintan Island reportedly was reinstated and to be completed by 1987. The first-phase expansion project of Freeport Indonesia Inc. at the Ertsberg

copper mine in Irian Jaya was also completed in 1984. The copper mining capacity at the Ertsberg Mine was raised to 13,500 tons of ore per day, and the milling capacity of the concentrator was increased to 13,100 tons per day. At Soroako in South Sulawesi, P.T. International Nickel Indonesia (P.T. Inco) established a new output record to meet growing Japanese demand for its nickel-sulfate matte. The hard hit tin mining industry remained depressed because of weak demand for tin in the world. The country's only tin smelter at Mentok on Bangka Island planned to cut its capacity from 38,000 to 26,000 tons per year in 1985.

Indonesia's cement industry capacity rose to about 12 million tons per year following completion of three new cement plants in South Sulawesi, West Java, and Sumatra. The fertilizer industry's capacity of urea and triple superphosphate was raised to 3.3 million tons per year and 1 million tons per year, respectively, after completion of three urea plants in Kalimantan and North Sumatra, and two compound fertilizer plants in East Java.

The devaluation of the Indonesian rupiah and rephasing of Government multibillion dollar projects helped to improve Indonesia's merchandise trade position substantially in 1984. During the year, the trade surplus rose 67% to $8 billion owing to increased export earnings and decreased imports. Exports of crude petroleum and LNG accounted for 73% of total export earnings. Despite reduced earnings from exports of crude petroleum, the increased exports of LNG to Japan helped Indonesia to sustain the earning power from exports of its energy resources. A 17% increase in exports of nonoil commodities to $5.9 billion was also recorded. Exports of most minerals and metals increased, except tin.

After 3 years of implementing a counterpurchase policy, the number of countries signing agreements with Indonesia rose to 22, and total counter-purchase obligations reached $1.2 billion in 1984. The policy was to promote exports of nonoil commodities. These nonoil commodities included aluminum alloy bar, aluminum ingot, coal, compound chemical fertilizer, copper concentrate, iron ore, latex, nickel matte, plywood, quartz, resin, rubber, sand, timber, tin, urea, and other materials. In terms of contract value, the Federal Republic of Germany ranked first at $369 million followed by Japan, $248 million; Canada, $182 million; and the United States, $93 million.[3]

Indonesia's gross domestic product (GDP) in 1973 constant dollars grew 4.4% in 1984 compared with 4.2% (revised) in 1983. The mining sector, which contributed about 24% to Indonesia's GDP, and the agricultural sector, which contributed about 26%, remained the basic strength of the faster growth rate in Indonesian economy. The increased output of LNG and nonfuel minerals helped Indonesia's mineral sector to sustain its share of sectoral contribution to Indonesia's GDP. Indonesia's GDP in current dollars was estimated at about $90 billion compared with $73 billion in 1983. The inflation rate as measured by the Consumer Price Index dropped to 9% from 12% in 1983.

In July, the 10% value-added tax laws, originally scheduled to become effective on July 1, were postponed until January 1, 1986, owing to a lack of preparation by the Government and taxpayers. Effective June 8, 1984, a 10% tax on tin exports was abolished. In an effort to promote nonfuel commodities exports, the Minister of Finance issued a decree in April to abolish export taxes on bauxite and nickel. In January, a new income tax law became effective lowering the maximum income tax rate from 45% to 35%.

PRODUCTION

The performance of Indonesia's mineral industry was significantly better than that of 1983. However, the production controls imposed by the International Tin Council (ITC) on tin and by OPEC on crude petroleum continued to affect the output level of the two most important mineral commodities produced in Indonesia.

Production of crude petroleum dropped 4.5% to an average of 1.3 million barrels per day, but the output of natural gas rose to a new annual record high of 1.5 trillion cubic feet resulting from increased use of natural gas for the production of LNG at the Arun LNG plant in North Sumatra and at the Badak LNG plant in East Kalimantan. Production of coal from the Ombilin Mine in West Sumatra and from the Bukit Asam Mine in South Sumatra reached new record highs of 583,600 tons and 501,100 tons, respectively, as the two mines continued their expansion programs.

In the metallic mineral sector, production of tin continued to decline because of the ITC export controls resulting from the depressed world tin market. However, production of aluminum, bauxite, copper, and metallic nickel was at a higher level than that of 1983. The growing Japanese demand and higher prices for those metals in the world market were the two major factors for the increased production. However, the high production level of copper concentrate at the Ertsberg Mine in Irian Jaya was sustained by the reduced production costs resulting from increased productivity following the completion of the first-phase mining and milling expansion project by Freeport Indonesia. After completion of third-phase construction, aluminum ingot production from the Asahan smelter at Kuala Tanjung in North Sumatra rose to 200,000 tons per year.

Under Government encouragement and support, Indonesia's cement and fertilizer industries continued to grow. Production of cement by the nine cement companies rose to a new record high when three new cement plants came on-stream. Production of fertilizer materials also reached a new record high as the annual output capacity of urea was expanded to over 3.3 million tons. Production of compound chemical fertilizer also increased substantially when the phase II expansion project was completed and became operational in Gresik, East Java.

Table 1.—Indonesia: Production of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1980	1981	1982	1983	1984[p]
METALS					
Aluminum:					
Bauxite, dry equivalent, gross weight thousand tons	1,249	1,203	r700	778	1,003
Metal, primary	--	--	r32,532	114,766	204,200
Copper, mine output, metal content	59,027	62,516	r75,116	78,608	82,509
Gold, mine output, metal content[2] troy ounces	r58,223	r51,218	r71,878	76,892	78,684
Iron and steel:					
Iron sand, dry basis	62,914	86,626	144,493	132,887	82,769
Metal:					
Ferroalloys, ferronickel	18,314	19,884	21,501	20,708	[3]22,729
Steel, crude	360,000	500,000	500,000	800,000	e1,400,000
Manganese ore	4,299	2,587	17,894	8,318	e10,000
Nickel:					
Mine output, metal content[3]	53,287	48,850	45,882	49,378	e48,500
Metallurgical products:					
Matte: Nickel content	20,302	19,940	13,748	18,288	22,815
Ferronickel: Nickel content	4,421	4,703	5,010	4,855	5,340
Silver, mine output, metal content thousand troy ounces	701	830	1,134	1,135	1,121
Tin:					
Mine output, metal content	32,527	35,391	33,806	26,553	23,225
Metal	30,465	32,429	29,755	28,390	22,467
NONMETALS					
Asbestos[e]	--	5,000	25,000	25,000	25,000
Cement, hydraulic thousand tons	5,821	6,844	7,501	8,187	e10,700
Clays, kaolin powder	75,558	80,904	77,207	59,628	67,795
Diamond:[e]					
Industrial thousand carats	12	12	12	22	22
Gem do.	3	3	3	r5	5
Total do.	15	15	15	27	27
Iodine kilograms	r29,231	25,360	28,920	25,297	24,970
Nitrogen: N content of ammonia	938,455	920,213	1,027,600	1,150,400	1,658,200
Phosphate rock	11,191	7,846	5,031	5,573	2,547
Salt, all types thousand tons	690	286	799	620	e700
Stone:					
Granite do.	926	1,811	2,130	2,405	e2,500
Limestone[4] do.	7,605	8,749	11,002	12,073	12,703
Marble square meters	25,380	28,842	28,970	24,374	16,108
Quartz	260,075	155,730	977,289	372,216	543,766
Sulfur, elemental[5]	197	951	1,144	2,769	e2,700
MINERAL FUELS AND RELATED MATERIALS					
Asphalt rock, bitumen content	173,018	276,498	330,842	533,188	471,239
Coal thousand tons	338	399	588	648	1,085
Gas, natural:					
Gross million cubic feet	1,045,748	1,123,720	1,111,928	1,186,362	1,527,517
Marketed do.	695,914	720,258	926,150	1,032,321	1,367,473

See footnotes at end of table.

Table 1.—Indonesia: Production of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity		1980	1981	1982	1983	1984[p]
MINERAL FUELS AND RELATED MATERIALS —Continued						
Natural gas liquids: Propane and butane[e]	thousand 42-gallon barrels	15	15	14	14	14
Petroleum:						
Crude including field condensate	do	577,016	584,838	488,167	490,483	468,513
Refinery products:						
Gasoline	do	17,475	17,015	13,385	12,980	NA
Jet fuel	do	25		8	2,760	NA
Kerosine	do	25,988	24,052	18,947	31,669	NA
Distillate fuel oil	do	19,184	17,850	14,714	37,522	NA
Residual fuel oil	do	17,985	14,343	14,131	66,596	NA
Lubricants	do	499		525	487	NA
Liquefied petroleum gas	do	294	448	373	471	NA
Paraffin wax	do	253	143	103	76	NA
Naphtha	do	(6)	(6)	465	19,074	NA
Unfinished oils requiring further processing	do	41,599	39,188	26,355	2,405	NA
Unspecified	do	2,418	1,962	5,623	5,657	NA
Refinery fuel and losses	do	3,917	3,443	4,654	5,169	NA
Total	do	129,637	118,444	99,283	184,866	NA

[e]Estimated. [p]Preliminary. [r]Revised. NA Not available.

[1]Table includes data available through July 30, 1985.

[2]Includes Au content of copper ore and output by Government-controlled operations. Gold output by operators of so-called People's mines is not available but may be as much as 30,000 troy ounces per year.

[3]Includes a small amount of cobalt that is not recovered separately.

[4]Data represent limestone used for cement production. Excludes considerable amounts of limestone produced by enterprises under local jurisdictions for building materials, for crushed rock to be used as aggregate, and to burn for lime.

[5]Sulfur produced by other than the Frasch process.

[6]Less than 1/2 unit.

TRADE

Despite the continuing decline in exports of crude petroleum, the increased exports of LNG and nonoil commodities helped not only to offset the reduction in oil exports but also boosted the level of overall export earnings by more than 3%. Because of rescheduling several major industrial development projects, Indonesia's import bill was reduced by about 15%. As a result, Indonesia's trade balance improved substantially.

According to the Central Bureau of Statistics, overall export earnings rose 3.5% to $21.9 billion over that of 1983, while imports of goods dropped 15.1% to $13.9 billion. As a result, the merchandise trade surplus increased 67% to $8 billion in 1984.

Exports of mineral products were valued at $16.2 billion, of which $16 billion were from crude petroleum, petroleum products, and LNG; $111 million from copper ore; $14 million each from bauxite ore and nickel ore; and $61 million from coal and other. Exports of base metals were valued at $630 million, of which $269 million were from exports of tin, $205 million from aluminum ingot, and $126 million from nickel matte. Exports of cement and fertilizer were valued at $12.5 million and $37.3 million, respectively.

Capital goods for the country's industrial development projects remained the major import items. Imports of machinery and electrical equipment, vehicles and transport equipment, and base metals were valued at $3.4 billion, $1.6 billion, and $1.5 billion, respectively. Indonesia also imported about $1.3 billion of heavy crude petroleum for consumption by the domestic petroleum refineries.

The European Economic Community (EEC), Japan, Singapore, and the United States remained the major trade partners of Indonesia. Indonesia's exports to and imports from Japan were $10.4 billion and $3.3 billion, respectively. Indonesia's exports to and imports from the United States were $4.5 billion and $2.6 billion, respectively. Most exports of Indonesia's crude petroleum went to Japan and the United States, and all exports of LNG were to Japan. Most exports of minerals and metals were to Japan, while imports of most capital goods were from the EEC, Japan, and the United States.

Table 2.—Indonesia: Exports of selected mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1982	1983	Destinations, 1983	
			United States	Other (principal)
METALS				
Aluminum:				
Ore and concentrate	746,784	786,311	--	All to Japan.
Metal including alloys:				
Unwrought	16,028	90,712	--	Japan 90,577.
Semimanufactures	192	1,912	--	Japan 1,547; Singapore 171; Hong Kong 158.
Cobalt: Oxides and hydroxides	4	--		
Copper:				
Ore and concentrate	191,749	229,053	--	All to Japan.
Metal including alloys, all forms	1,169	863	--	Japan 605; Singapore 142; Hong Kong 116.
Gold: Waste and sweepings kilograms	--	50	--	All to Switzerland.
Iron and steel:				
Iron ore and concentrate excluding roasted pyrite	11,000	--		
Metal:				
Scrap	134	1,016	--	All to Japan.
Pig iron, cast iron, related materials	117,080	119,941	--	Japan 62,052; India 57,889.
Semimanufactures:				
Bars, rods, angles, shapes, sections	(2)	--		
Universals, plates, sheets	100	--		
Tubes, pipes, fittings	1,951	70	--	All to Singapore.
Castings and forgings, rough	784	1	--	All to Japan.
Lead: Ore and concentrate	--	700	--	Japan 500; Taiwan 200.
Manganese: Ore and concentrate[3]	8,400	27,670	--	Japan 23,170; Taiwan 4,500.
Nickel:				
Ore and concentrate	721,518	514,972	--	All to Japan.
Matte and speiss	87,951	46,010	--	Japan 33,055; Netherlands 12,807.
Metal including alloys, all forms	30	--		
Tin:				
Ore and concentrate	1,473	1,342	--	Malaysia 905; United Kingdom 437.
Metal including alloys, all forms	28,610	24,968	--	Singapore 15,527; Netherlands 4,125; United Kingdom 1,775.
Zinc:				
Ore and concentrate	--	1,294	--	All to Japan.
Metal including alloys, all forms	679	436	--	Japan 348.
Other: Ashes and residues	1,754	2,389	--	Japan 1,777; Taiwan 507.
NONMETALS				
Barite and witherite	2,829	5,807	--	All to Singapore.
Cement	206,734	198,350	--	Singapore 78,950; Bangladesh 68,000; Malaysia 31,100.
Clays, crude:				
Bentonite	6,909	9,928	--	Singapore 5,837; Philippines 2,380; Malaysia 181.
Kaolin	2,063	3,796	--	Taiwan 2,533; Japan 1,000.
Unspecified	r2,127	100	--	All to Singapore.
Fertilizer materials: Manufactured:				
Ammonia	7,640	25,909	--	Philippines 13,862; Republic of Korea 4,810; India 4,500.
Nitrogenous	45,033	328,547	--	Philippines 196,266; Hong Kong 69,600; Malaysia 32,711.
Phosphatic	--	14,500	--	All to Hong Kong.
Iodine	18	2	--	All to India.
Phosphates, crude	520	1,106	--	All to Taiwan.
Pigments, mineral: Iron oxides and hydroxides, processed	--	21	--	Taiwan 11; West Germany 10.
Salt and brine	--	330	--	All to Singapore.
Sodium compounds, n.e.s.: Sulfate, manufactured	--	2,100	--	Thailand 1,000; Singapore 900; Republic of Korea 200.
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked thousand tons	714	1,358	--	All to Singapore.
Worked	4	1	--	All to Japan.
Gravel and crushed rock	--	304	12	Hong Kong 292.
Quartz and quartzite	5,880	28,385	--	All to Japan.
Sand other than metal-bearing thousand tons	17,669	20,596	--	Singapore 20,595.
Sulfur: Elemental, colloidal, precipitated, sublimed kilograms	--	100	--	All to Malaysia.
MINERAL FUELS AND RELATED MATERIALS				
Coal:				
Anthracite	94,371	251,810	--	Malaysia 189,017; Republic of Korea 36,150; Thailand 11,000.
Bituminous	116,368	172,648	--	Japan 107,199; Malaysia 35,300; Republic of Korea 20,889.

See footnotes at end of table.

Table 2.—Indonesia: Exports of selected mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1982	1983	Destinations, 1983	
			United States	Other (principal)
MINERAL FUELS AND RELATED MATERIALS —Continued				
Gas, natural, liquefied thousand tons	9,866	9,919	--	All to Japan.
Petroleum:				
Crude thousand 42-gallon barrels	426,892	380,166	94,580	Japan 165,687; Singapore 58,779; Trinidad and Tobago 28,774.
Refinery products:				
Liquefied petroleum gas do	4,349	4,095	516	Japan 3,260; Singapore 159.
Mineral jelly and wax do	2	--	--	--
Kerosine and jet fuel do	8	11	NA	NA.
Distillate fuel oil do	24	82	NA	NA.
Lubricants do	(2)	(2)	--	All to Singapore.
Nonlubricating oils do	125	--	--	--
Residual fuel oil do	19,547	32,029	7,283	Japan 24,336; Republic of Korea 274.

[r]Revised. NA Not available.
[1]Table prepared by Audrey D. Wilkes.
[2]Less than 1/2 unit.
[3]Includes manganiferous iron ore and concentrate.

Table 3.—Indonesia: Imports of selected mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1982	1983	Sources, 1983	
			United States	Other (principal)
METALS				
Aluminum:				
Ore and concentrate	45	146	1	Japan 120.
Oxides and hydroxides	66,110	182,417	61	Japan 96,887; Australia 78,822; China 2,900.
Metal including alloys:				
Scrap	42	1	--	All from Singapore.
Unwrought	33,677	20,067	138	Australia 7,701; Canada 3,787; United Kingdom 903.
Semimanufactures	27,621	26,765	733	Japan 6,317; France 4,943; West Germany 2,498.
Arsenic:				
Ore and concentrate kilograms	--	235	--	All from Japan.
Oxides and acids	66	34	--	Belgium-Luxembourg 17; U.S.S.R. 12; China 5.
Chromium:				
Ore and concentrate	10	21	--	Japan 20.
Oxides and hydroxides	315	562	54	United Kingdom 320; Japan 139.
Cobalt: Oxides and hydroxides	63	95	--	China 60; Japan 21.
Copper:				
Matte and speiss including cement copper	502	641	475	Singapore 112; Japan 54.
Sulfate	196	321	(3)	Japan 163; Italy 72; West Germany 32.
Metal including alloys:				
Scrap	36	475	100	Japan 300; Australia 75.
Unwrought	18,119	16,968	9	Japan 8,994; Zambia 7,627.
Semimanufactures	11,311	7,942	402	Japan 4,870; Singapore 953; Republic of Korea 670.
Gold: Metal including alloys, unwrought and partly wrought thousand troy ounces	1,028	14	--	All from United Kingdom.
Iron and steel:				
Iron ore and concentrate:				
Excluding roasted pyrite	121,039	127,999	--	Sweden 121,022; Brazil 5,975; Malaysia 1,000.
Pyrite, roasted	178,786	60,450	--	All from Sweden.
Metal:				
Scrap	226,894	257,889	80,459	Australia 69,164; Hong Kong 45,496.
Pig iron, cast iron, related materials	84,022	87,694	54	Algeria 19,651; Netherlands 12,122; U.S.S.R. 10,131.
Ferroalloys:				
Ferrochromium	5	24	--	Japan 13; Philippines 10.
Ferromanganese	5,680	7,437	--	Australia 3,124; Mozambique 2,250; Taiwan 750.

See footnotes at end of table.

Table 3.—Indonesia: Imports of selected mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1982	1983	Sources, 1983	
			United States	Other (principal)
METALS —Continued				
Iron and steel —Continued				
Metal —Continued				
Ferroalloys —Continued				
Ferrosilicon	7,335	8,444	--	Australia 3,542; Philippines 1,725; China 960.
Unspecified	496	1,447	16	Taiwan 773; Australia 398; Mozambique 150.
Steel, primary forms	222,413	158,471	32	Republic of Korea 49,608; Australia 19,888; Switzerland 19,705.
Semimanufactures:				
Bars, rods, angles, shapes, sections	281,364	241,621	2,855	Japan 197,537; Republic of Korea 12,266; Taiwan 12,141.
Universals, plates, sheets	1,231,953	1,147,563	7,784	Japan 790,453; Republic of Korea 121,853; Mozambique 39,087.
Hoop and strip	35,381	24,362	86	Japan 17,077; Australia 4,311.
Rails and accessories	15,362	27,607	40	Republic of Korea 21,109; Japan 3,580.
Wire	14,290	11,604	98	Japan 5,542; Republic of Korea 1,670; United Kingdom 1,464.
Tubes, pipes, fittings	416,085	266,037	36,381	Japan 161,651; Singapore 39,778.
Castings and forgings, rough	13,815	10,184	1,433	Japan 3,097; Singapore 1,491; Taiwan 1,472.
Lead:				
Oxides	1,238	1,220	106	Australia 590; Mexico 270; West Germany 116.
Metal including alloys:				
Scrap	174	321	--	Taiwan 162; Australia 159.
Unwrought	11,422	12,717	31	Australia 11,045; Taiwan 600; Malaysia 491.
Semimanufactures	223	357	3	China 231; Taiwan 48; Thailand 42.
Magnesium: Metal including alloys:				
Unwrought	28	36	3	West Germany 20; Norway 12.
Semimanufactures	50	29	16	Japan 11.
Manganese:				
Ore and concentrate	4,890	2,889	--	Singapore 2,888.
Oxides	17,284	18,322	--	Singapore 12,929; Japan 4,360; China 671.
Mercury 76-pound flasks	524	642	1	Netherlands 408; West Germany 174.
Molybdenum: Metal including alloys, all forms kilograms	670	363	86	Netherlands 214; Taiwan 61.
Nickel: Metal including alloys:				
Unwrought	48	76	--	Japan 71.
Semimanufactures	1,824	1,778	85	West Germany 1,214; Canada 314.
Platinum-group metals: Metals including alloys, unwrought and partly wrought troy ounces	482	10,449	7,941	Singapore 2,443.
Rare-earth metals including alloys, all forms	395	12	--	Japan 10.
Silver:				
Waste and sweepings[3] value	$748	--		
Metal including alloys, unwrought and partly wrought troy ounces	1,508	9,726	290	Singapore 7,716; Japan 1,720.
Tin: Metal including alloys:				
Unwrought kilograms	2,271	1,043	43	United Kingdom 1,000.
Semimanufactures	396	84	(2)	Japan 51; Netherlands 16; Singapore 11.
Titanium: Oxides	11,797	14,087	1,400	Japan 4,484; West Germany 2,519; Australia 2,478.
Tungsten: Metal including alloys, all forms	2	82	1	France 71; Japan 7.
Uranium and/or thorium:				
Oxides and other compounds	r260	211	--	France 196.
Metal including alloys, all forms, uranium	139	48	(2)	Australia 18; Taiwan 18; China 10.
Vanadium: Oxides and hydroxides	5	29	12	Japan 17.
Zinc:				
Oxides	795	521	7	China 260; Japan 214.
Metal including alloys:				
Scrap	167	432	--	Australia 300; Singapore 120.
Unwrought	65,626	68,937	50	Australia 54,383; Canada 5,871; Japan 2,932.
Semimanufactures	1,374	1,559	198	Australia 575; Belgium-Luxembourg 248.
Other:				
Ores and concentrates:				
Of base metals	1,155	3,030	--	China 2,000; Australia 727.
Of precious metals	--	802	--	All from Malaysia.
Ashes and residues	9	988	--	Japan 980.
Base metals including alloys, all forms	86	96	(2)	China 46; Australia 19.

See footnotes at end of table.

Table 3.—Indonesia: Imports of selected mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1982	1983	Sources, 1983	
			United States	Other (principal)
NONMETALS				
Abrasives, n.e.s.:				
Natural: Corundum, emery, pumice, etc	327	418	81	Japan 275; India 20.
Artificial: Silicon carbide	170	116	--	France 37; Brazil 34; Switzerland 22.
Grinding and polishing wheels and stones	2,354	2,030	80	China 1,021; Japan 402; Taiwan 242.
Asbestos, crude	18,764	15,095	270	Canada 8,849; China 1,205; Mozambique 746.
Barite and witherite	70,833	74,316	--	Thailand 69,075; Philippines 3,700; Singapore 768.
Boron materials:				
Crude natural borates	185	21	--	West Germany 18.
Oxides and acids	676	698	609	Belgium-Luxembourg 37; France 19.
Bromine kilograms	78	2	2	
Cement	494,888	691,190	20,101	Republic of Korea 200,345; Taiwan 187,789; Japan 129,622.
Clays, crude:				
Bentonite	30,679	24,185	21,189	Italy 1,100; Singapore 570; Japan 558.
Chamotte and dinas earth	90	56	--	All from Japan.
Kaolin	13,218	20,347	8,319	Japan 5,148; Australia 3,248.
Unspecified	4,720	5,820	4,681	Japan 500; Malaysia 356.
Cryolite and chiolite	3,940	6,661	--	All from Japan.
Diatomite and other infusorial earth	179	1,188	213	Thailand 681; Malaysia 207.
Feldspar	10,653	7,230	--	China 4,155; India 1,698; Japan 429.
Fertilizer materials:				
Crude, n.e.s	9,404	2,957	76	Netherlands 2,041; Jordan 824.
Manufactured:				
Ammonia	163	31	4	United Kingdom 15; Japan 7; Singapore 4.
Nitrogenous	376,268	425,077	38,213	Japan 97,336; Romania 73,670; West Germany 45,231.
Phosphatic	259,441	227,321	116,706	Turkey 40,000; Egypt 20,900; Tunisia 20,510.
Potassic	223,767	254,913	--	West Germany 63,320; Spain 61,687; Singapore 29,498.
Unspecified and mixed	10,937	6,288	24	West Germany 2,376; Belgium-Luxembourg 2,250; Netherlands 1,074.
Graphite, natural	231	161	--	Taiwan 50; Japan 37; West Germany 36.
Gypsum and plaster	294,350	356,155	46	Australia 183,295; Thailand 116,862; Japan 26,279.
Iodine	40	54	24	United Kingdom 28.
Lime	567	849	78	Malaysia 530; Singapore 105.
Magnesium compounds: Magnesite	3,613	3,955	--	Japan 1,639; Taiwan 1,205; Republic of Korea 1,000.
Mica:				
Crude including splittings and waste	587	547	32	India 297; Japan 47; Australia 46.
Worked including agglomerated splittings	197	152	9	China 78; Taiwan 27; Japan 19.
Nitrates, crude	901	5,090	--	Japan 4,300; Belgium-Luxembourg 790.
Phosphates, crude	294,730	361,759	85,962	Jordan 177,000; Morocco 61,432; Australia 24,015.
Pigments, mineral:				
Natural, crude	351	538	--	China 520.
Iron oxides and hydroxides, processed	2,410	3,730	272	China 1,397; West Germany 986; Japan 800.
Potassium salts, crude	--	588	--	All from West Germany.
Precious and semiprecious stones other than diamond: Synthetic value, thousands	$432	--	--	
Salt and brine	668	943	28	West Germany 501; United Kingdom 172; Taiwan 60.
Sodium compounds, n.e.s.:				
Carbonate, manufactured	97,600	88,779	43,262	Japan 10,699; Kenya 10,501.
Sulfate, manufactured	13,380	6,723	3,366	Japan 854; Taiwan 800; China 793.
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked	546	393	--	West Germany 175; Italy 123; China 90.
Worked	2,466	3,273	3	Italy 1,398; Taiwan 925; China 618.
Dolomite, chiefly refractory-grade	4,356	4,072	--	Japan 2,891; Taiwan 1,050.
Gravel and crushed rock	1,716	1,580	368	France 538; Japan 222; Taiwan 200.
Limestone other than dimension	173	160	(3)	Malaysia 150.
Quartz and quartzite	257	130	--	Japan 60; Taiwan 50; United Kingdom 20.
Sand other than metal-bearing	3,286	17,406	560	Malaysia 15,559; Singapore 598.

See footnotes at end of table.

Table 3.—Indonesia: Imports of selected mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1982	1983	Sources, 1983	
			United States	Other (principal)
NONMETALS —Continued				
Sulfur:				
Elemental:				
Crude including native and byproduct	3,413	3,122	--	Singapore 2,240; Republic of Korea 530.
Colloidal, precipitated, sublimed	82,805	102,564	3,119	Canada 70,543; Singapore 19,880; Saudi Arabia 6,417.
Dioxide	8	12	(2)	Australia 8; Sweden 4.
Sulfuric acid	1,391	1,826	366	Singapore 1,423.
Talc, steatite, soapstone, pyrophyllite	17,338	20,304	508	China 14,019; Taiwan 1,772; Republic of Korea 1,207.
Other:				
Crude	3,705	5,708	158	Japan 2,314; Republic of Korea 1,050; China 985.
Slag and dross, not metal-bearing	14,166	3,109	784	Japan 1,172; Singapore 703; United Kingdom 450.
MINERAL FUELS AND RELATED MATERIALS				
Asphalt and bitumen, natural	16,745	8,143	264	Singapore 7,232; China 218.
Carbon: Carbon black	27,621	27,108	368	Australia 15,862; Japan 3,256; Taiwan 2,478.
Coal: All grades including briquets	2,772	1,587	771	Japan 626; Thailand 144.
Coke and semicoke	28,218	24,199	13	Japan 15,903; Taiwan 6,056.
Petroleum:				
Crude thousand 42-gallon barrels	26,925	22,709	--	All from Saudi Arabia.
Partly refined do.	1,053	1,289	--	Singapore 1,148.
Refinery products:				
Gasoline do.	8,928	16,039	6	Singapore 15,086; Australia 431.
Mineral jelly and wax do.	47	549	1	Singapore 485.
Kerosine and jet fuel do.	17,074	22,760	--	Singapore 21,952.
Distillate fuel oil do.	4,304	10,199	(2)	Singapore 9,145; Philippines 1,054.
Lubricants do.	695	707	229	Singapore 360; Japan 48.
Nonlubricating oils do.	617	270	12	Australia 131; Singapore 53; China 35.
Residual fuel oil do.	9,959	14,860	178	Singapore 13,499; Philippines 539.

[r]Revised.
[1]Table prepared by Audrey D. Wilkes.
[2]Less than 1/2 unit.
[3]May include other precious metals.

COMMODITY REVIEW

METALS

Aluminum and Bauxite.—Production of bauxite at Kijang on Bintan Island increased to a monthly average rate of 83,000 tons from 65,000 tons in 1983 owing to increased exports to Japan. All bauxite produced by P.T. Aneka Tambang (P.T. Antam) was exported to Japan under a 5-year contract signed in 1983. During 1984, exports of bauxite to Japan totaled 944,300 tons and were valued at $14 million.

In May, the Government of Indonesia reinstated the $750 million project to construct a 600,000-ton-per-year alumina plant on Bintan Island. The project was shelved by the Government in 1983 because of the high capital costs. However, a $60 million loan reportedly was secured for the project from the U.S. Export-Import Bank and the Chase Manhattan Bank of New York. According to press reports, the alumina plant was scheduled for completion in 1987.[4] Indonesia imported all of its alumina, principally from Australia and Japan.

Production of aluminum by IN-ALUM's smelter at Kuala Tanjung increased to over 200,000 tons from 115,000 tons in 1983. Exports of aluminum ingots to Japan also increased to 135,000 tons from 92,600 tons in 1983. Export earnings from aluminum rose to $205 million from $132 million in 1983 resulting from increased export volume as well as in average export prices to $1,516 per ton from $1,425 ton in 1983.

In November, third-phase construction on the Asahan aluminum project was completed at Kuala Tanjung in North Sumatra.

The Asahan project, initiated in 1976, consists of a 225,000-ton-per-year aluminum smelter with three 170-cell reduction plants; two hydroelectric powerplants with a combined installed capacity of 603 megawatts; a new port at Kuala Tanjung; and new roads, telecommunications, and a new town of 10,000 people with shops, community centers, a school, and a hospital. The project, divided into three phases, took 6-1/2 years to complete at a cost of $1.7 billion, which is more than two times the original 1975 estimate.

Production of aluminum ingots by IN-ALUM in 1984 totaled about 350,000 tons since the aluminum smelter commenced first-phase operation in February 1982. During the 3-year period, the company exported 231,000 tons to Japan and distributed 31,000 tons to the domestic market. The remaining 83,000 tons, which was supposed to be sold in the domestic market, reportedly was being stockpiled in company warehouses and at the smelter owing to the availability of cheap imported aluminum and low demand for primary aluminum by the small fabricating industries of Indonesia. The aluminum ingot produced by IN-ALUM contained 99.7% aluminum, and was priced at $1,400 per ton for the domestic market compared with cheaper imported aluminum at $1,300 per ton. Indonesia's domestic consumption of primary aluminum was estimated at about 50,000 tons per year.[5]

Copper.—Despite the lower copper price in the world market, production of copper by Freeport Indonesia from the Gunung Bijih (Ertsberg) Mine in Irian Jaya reached a new record high in 1984. With the completion of the first-phase expansion program at the Ertsberg East underground mine and installation of a second primary crusher, Freeport Indonesia successfully raised its mining capacity to 13,500 tons per day from 12,000 tons per day in 1983. As a result, ore mined from the Ertsberg underground mine and open pit reached a record high of 4,951,000 tons compared with 4,349,000 tons in 1983. In 1984, the company also completed the modifications of its concentrator and raised its mill throughput to 13,100 tons per day.

According to the company's annual report, the output of copper concentrate decreased to 190,000 tons from 205,000 tons in 1983, but the copper content of the concentrate rose to 82,500 tons from 78,600 tons in 1983. Gold and silver content of the concentrate also rose to 71,000 troy ounces and 1,057,000 troy ounces from 66,000 troy ounces and 989,000 troy ounces, respectively, in 1983. Because of a 5.6% reduction in average copper price in 1984, the profits of Freeport Indonesia dropped to $5.4 million from $12.7 million in 1983. However, Freeport Indonesia's Ertsberg operation was one of the few copper operations in the world to remain profitable owing to the company's effective strategy to reduce the cost of production by increasing production efficiency and through stringent cost controls.[6]

The estimated proven and probable ore reserves at the Ertsberg and Ertsberg East ore bodies, as of December 1984, were 44 million tons having an average ore grade of 2.4% copper. At the current rate of production, the ore reserves were expected to last 8 to 9 more years until 1992 or 1993. To increase Ertsberg's ore reserves and maintain its low cost position, Freeport Indonesia continued to explore copper mineralization in the vicinity of the Ertsberg East ore body. In 1984, the company reported the discovery of two mineralized zones beneath the Ertsberg East underground mine. Further drilling and evaluation were scheduled for 1985 to ascertain the potential new ore reserves.

Gold and Silver.—Gold and silver production by P.T. Antam from the Cikotok Mine in South Banten, West Java, decreased while gold and silver recovered by Freeport Indonesia from its copper operation at the Ertsberg Mine increased. (See "Copper" section.)

Under the fourth 5-year plan (1984-88), development of natural resources was given as one of the Government's top priorities with special emphasis on increased exploration for nonoil mineral resources. To meet this end, the Government of Indonesia reportedly awarded contracts to nine foreign mining companies to explore and develop gold mines under modified third generation contracts of work in 1984. The modified terms under the new contracts of work include free foreign exchange movement; a corporation tax of 35% for the first 5 years after the start of mine production, 40% from 6 to 10 years, and 45% after 11 years; and a provision of 51% of the issued shares allowed for Indonesian nationals within 10 years after the start of mine production.[7]

The awarded nine contracts for gold exploration and mine development are shown in table 4.

Table 4.—Indonesia: Gold exploration and mine development contracts

Contractor (Firm established in Indonesia)	Location	Area (square kilometers)
British Petroleum Ltd., United Kingdom:		
P.T. Barito Sakti	Central Kalimantan	2,519
P.T. Putri Tayan Indonesia	West Kalimantan	1,227
Conzinc Rio Tinto of Australia Holding Pty (CRA):		
P.T. Rio Tinto Indonesia	Sampit, Central Kalimantan	10,693
CRA, Kelian Pty., Australia:		
P.T. Buana Jaya Raya	Kutai, East Kalimantan	2,862
P.T. Kelian Equator Mining		
Duval Corp., United States:		
P.T. Gunung Muro	Central Kalimantan	1,036
Jimberlana Minerals Ltd., Hong Kong, and Duval Alluvial Corp., United States:		
P.T. Sungai Mas	West Kalimantan	5,535
P.T. Amysa Mining		
J. V. Bengkulu Minerals Ltd., Australia:		
P.T. Ketaun Mining	North Bengkulu	1,603
P.T. Lebong Tandi		
P.T. Lusang Mining Indonesia	do	75
Petson Mangani Minerals Ltd., Australia:		
P.T. Bulangsi Andala Mining	West Sumatra	1,899

In November, a joint venture firm, Bengkulu Minerals Pty. Ltd., was established by CSR Ltd. of Australia and a local Indonesian company to rehabilitate and develop a new mining operation at the old Lebong Tandai gold mine in Bengkulu, southwest Sumatra. The gold project, estimated to cost $30 million, was expected to commence operation at a rate of 35,000 tons of ore per year in late 1986. The proven ore reserves were estimated at 300,000 tons having an average grade of 0.31 troy ounce of gold per ton.[8]

Iron and Steel.—Iron sands production from the Cilacap area along the south coast of central Java dropped significantly to an average monthly rate of 7,000 tons from 11,000 tons in 1983. Most iron sands produced in Indonesia was for domestic consumption principally by the cement industry. In 1983, domestic consumption of iron sands totaled 122,154 tons; 10,251 tons was exported to Japan.

According to local press reports, a small iron mine and smelting project was completed in 1984 at Sindang Sari near Bandar Lampung in south Lampung, South Sumatra. The $2.8 million project included an 8,000-ton-per-year iron smelting plant at Way Rilau, a 16,000-ton-per-year iron ore mine at Pematang Burhan, two charcoal procurement centers in Lampung Selantau and in Lampung Utara, and a Lamturo tree (from which charcoal would be made) plantation in Bergen to produce 8,000 tons per year of charcoal for the smelter as fuel. The project is to serve as a model for the development of the homegrown iron processing technology. The design and manufacturing of the iron ore smelter were furnished by the National Metallurgy Institute of the Indonesian Institute of Sciences in Lampung, and only 10% of the equipment and facilities was imported. The plant was scheduled to commence operation in mid-1984. The pig iron produced by the plant will be marketed to the local foundry industry for production of casting products.[9]

Production of steel increased to about 1.4 million tons but the output in 1984 was still far below the installed capacity of 2.2 million tons per year. According to a Government official, Indonesia's total demand for steel was about 2.8 million tons. The underutilization of the country's steel capacity reportedly, was attributable to the high price and low quality of the domestically produced steel.

P.T. Krakatau Steel began construction of its third-phase steel mill project, which included installation of an 850,000-ton-per-year cold-rolling mill, tinning line, seamless pipe mill, and an iron ore pellet plant. The third-phase steel mill project was scheduled for completion in 1986.

In anticipation of a future increase in steel demand, the Government of Indonesia invited a team of nine Japanese steel experts sponsored by the Japan International Cooperation Agency to Indonesia in July 1984. The Japanese team reportedly was to investigate the prospects for constructing a second integrated steel mill complex with a 3-million-ton-per-year capacity in Indonesia.

Nickel.—Production of nickel ore by P.T. Antam from nickel mines in the Pomalaa area of southeast Sulawesi, and on Gebe

Island, Maluku, of north Molyccas decreased to about 1.1 million tons, but production of ferronickel at P.T. Antam's Pomalaa plant increased 10% to 22,729 tons. Exports of nickel ore and ferronickel to Japan rose substantially owing to continuing improvements in the Japanese nickel market.

In 1983, P.T. Antam produced 1,278,031 tons of wet ore, of which 51% was from the Pomalaa area, and 49% was from Gebe Island. The company exported only 737,024 tons of ore in 1983 compared with 1.1 million tons in 1982. Production of ferronickel was 20,708 tons in 1983 compared with 21,500 tons in 1982. However, exports of ferronickel rose to 24,190 tons (5,721 tons of nickel) in 1983 compared with 18,648 tons (4,336 tons of nickel) in 1982. Export earnings of nickel ore and ferronickel were valued at $12.8 million and $25.4 million, respectively, in 1983.[10]

Production of nickel ore and nickel matte by P.T. Inco from its Soroako nickel complex in South Sulawesi continued to increase in 1984 to meet the growing Japanese demand for nickel-sulfate matte. Both mine output and nickel matte production reached new record highs, and the operating costs reportedly were reduced. However, the production of nickel in matte was about 6,700 tons below the planned level of 29,500 tons because of mechanical difficulties with the top blown rotary converter. To increase productivity and lower operating costs, P.T. Inco was to undertake a major overhaul of the existing converters and to install a Pierce-Smith converter at the smelting plant.[11]

In 1984, P.T. Inco exported 22,987 tons of nickel in matte to Japan compared with 17,149 tons in 1983. However, the value of nickel exports dropped to $106 million from $109 million in 1983 resulting from lower export prices in 1984.

As a result of further detailed sampling within a 10-kilometer radius of the Soroako townsite, proven and probable ore reserves were increased to 69 million tons containing 1.3 million tons of nickel at the end of 1984. The average grade of ore mined from the East and West blocks of the open pit mines was about 2.1% nickel.

Tin.—The output of tin ore and concentrate declined because of the continuing imposition of export controls by the ITC. Under an agreement signed in July 1983, the quarterly permissible tin metal exports by Indonesia during 1984 was 5,506 tons. As a result, Indonesia's production of refined tin reportedly dropped to the 22,500-ton level from the 28,400-ton level in 1983, while exports of tin metal also dropped to 22,000 tons from 25,000 tons in 1983.

Tin production in Indonesia by company and area for 1982-83 was as follows, in metric tons:

Company and area	1982	1983
P.T. Tambang Timah:		
Bangka Island	18,446	13,893
Belitung Island	6,468	4,514
Singkep Island	1,250	1,506
Bangkinang, Sumatra	54	40
P.T. Koba Tin: Koba, Bangka Island	5,471	5,253
P.T. Broken Hill Pty. Indonesia: Kelapa Kampit, Belitung Island	648	649
P.T. Riau Tin Mining: Tujuh Riau Island	1,469	698
Total	33,806	26,553

Peleburan Timah Indonesia, a tin smelting unit of P.T. Timah at Mentok on the northwest coast of Bangka Island, reportedly was operating at 60% capacity because of export controls. According to a company official, the capacity of the 38,000-ton-per-year smelter would be reduced to 26,000 tons per year in 1985. The smelter produced two brands of tin metal for export. Mentok tin with a minimum of 99.85% tin was exported to Europe, Japan, and the United States, and Bangka tin with a minimum of 99.92% tin is sold directly to Japanese customers and may not be reexported.

NONMETALS

Cement.—Production of cement continued to increase as the industry's production capacity was expanded to 11.7 million tons per year in 1984. According to Government and industry sources, Indonesia's cement production in 1983 and the estimated annual capacity for 1984 by company were as follows, in thousand metric tons:

Company and location	1983 production	1984 estimated capacity
P.T. Indocement (West Java)	[1]2,823	3,200
P.T. Semen Padang (West Sumatra)	1,070	2,130
P.T. Semen Gresik (East Java)	1,413	1,500
P.T. Semen Cibinong (West Java)	1,116	1,250
P.T. Semen Tonasa (South Sulawesi)	409	1,210
P.T. Semen [illegible] Indonesia (North Su[illegible]a)	312	1,000
P.T. Semen Nusantara (West Java)	686	750
P.T. Semen Baturaja (South Sumatra)	358	500
P.T. Semen Kupang (Timor Island)	NA	120
Total	8,187	11,660

NA Not available.
[1]Includes 83,042 metric tons of white cement.

In August, an agreement was signed between Karya Merdeka Cooperative and the Jakarta-based P.T. Jacolintech Group to build a portland cement miniplant with an annual capacity of 30,000 tons in South Kalimantan. Construction work was expected to start following feasibility studies on limestone mining in South Kalimantan.

By yearend, P.T. Semen Padang was expected to add 600,000 tons per year to its 1.53-million-ton-per-year capacity under its Indarung III-B expansion programs in West Sumatra. P.T. Semen Tonasa had completed its expansion program to increase its capacity by 590,000 tons per year to 1.2 million tons per year in South Sulawesi. P.T. Indocement Group, the country's largest cement producer, was expected to complete the sixth phase of its rotary kiln in Citeureup, Cibinong, West Java, and increase its capacity to 4.7 million tons per year by 1985. The construction work of a 1.2-million-ton-per-year cement plant on Madura Island off the northeast coast of Java had been discontinued by the Government since October 1983. However, P.T. Indocement reportedly had taken over the project in August 1984.

Diamond.—Mining of diamonds in Indonesia was by primitive panning in the Cempaka area in the southeastern corner of Kalimantan, near Martapura where most of Indonesia's gem finishing and trading activities were concentrated. The diamonds produced from the area are of industrial quality for cutting tools and phonograph needles.

According to local officials, production of high-quality gem stone has been dwindling to about 27,000 carats of raw stones per year. To meet the country's requirements for raw stone by the Martapura finishing industry, Indonesia was importing about 150,000 carats of raw stone per year mainly from Belgium-Luxembourg and the Netherlands. Recently, the Central Bank of Indonesia provided funds to set up a gem finishing center and a training program to increase production and quality of the finished products.[12]

Fertilizer Materials.—In an effort to become self-sufficient in fertilizer, Indonesia's chemical fertilizer industry continued to expand. Production of ammonia, urea, and other chemical fertilizer materials such as ammonium sulfate, phosphoric acid, and sulfuric acid all reached new record highs in 1984.

The four major urea producers shown in table 5 also produced ammonia for further processing into ammonium sulfate by P.T. Petrokimia Gresik, the other important producer of chemical fertilizers in Indonesia.

Production of triple superphosphate, diammonium phosphate, and ammonium sulfate by P.T. Petrokimia Gresik was 783,000 tons, 14,000 tons, and 208,000 tons, respectively, in 1983. P.T. Petrokimia Gresik operated a large fertilizer manufacturing complex in Gresik and in Sarabaja of East Java. The company completed and brought on-stream its phase II expansion project in August and increased its annual capacity of triple superphosphate to about 1 million tons and ammonium sulfate to about 450,000 tons. The phase II expansion project at Gresik included a 317,500-ton-per-year phosphoric acid plant, a 510,000-ton-per-year sulfuric acid plant, a 440,000-ton-per-year gypsum plant, a 250,000-ton-per-year ammonium sulfate plant, and a 12,600-ton-per-year aluminum fluoride plant.[13]

Table 5.—Indonesia: Production and annual capacity of urea

(Thousand metric tons)

Company	Location	Production		Capacity
		1983	1984	1984
P.T. Pupuk Sriwijaya	Palembang, South Sumatra	1,621	1,519	1,620
P.T. Pupuk Kujang	Tjikampek, West Java	579	542	570
P.T. Pupuk Kaltim	Bontang, East Kalimantan	--	410	[1]570
P.T. Asean-Aceh Fertilizer	Lhokseumawe, North Sumatra	56	427	570
Total		2,256	2,898	3,330

[1]The annual capacity of P. T. Pupuk Kaltim was expanded to 1,140,000 tons of urea under its Kaltim II project in mid-1984.

Source: Fertilizer International. No. 183. July 19, 1984, pp. 12-13.

According to the Department of Industry, exports of urea dropped to 227,683 tons from 316,225 tons in 1983 because of lower prices in the world market. However, exports of triple superphosphate rose to more than 50,000 tons from 29,200 tons in 1983. Im-

ports of fertilizer were 140,000 tons of ammonium sulfate and 200,000 tons of potassium chloride (sylvite) in 1984.

MINERAL FUELS

Coal.—Production of coal in Indonesia rose sharply as the two coal mines, operated by the state-owned coal company P.N. Tambang Batubara in Sumatra, continued to expand their production capacities. About 492,000 tons of coal produced from the Ombilin Mine in West Sumatra was exported to Bangladesh, Malaysia, and Taiwan at $37 per ton, f.o.b. Pandang, and about 183,000 tons was marketed mainly to the domestic cement plants in 1984. Coal output from the Bukit Asam Mine in South Sumatra reached 500,000 tons. Most steam coal from the Bukit Asam Mine was shipped to Banten, West Java, for power generation at Unit I of the Suralaya powerplant, which was scheduled to start operation in 1985. About 35,000 tons of anthracite was shipped to the domestic tin and nickel mining and smelting companies. Production of coal by four private companies in East Kalimantan reportedly also increased substantially in 1984. Almost all of the coal from East Kalimantan was exported to Japan, the Republic of Korea, and Taiwan.

According to Indonesia's 1983 "Mining Yearbook" published by the Department of Mining and Energy, Indonesia's supply and demand for coal in 1982-83 were as follows, in metric tons:

	1982	1983
Production:		
P.N. Tambang Batubara:		
Ombilin Mine	302,572	325,662
Bukit Asam Mine	178,415	159,668
C.V. Fadjar Bumi	11,824	64,189
C.V. Baiduri Enterprise	95,177	49,669
P.T. Kitadin Corp	--	38,152
P.T. Tanito Harun	--	10,600
Total	587,988	647,940
Demand:		
Cement plants	132,458	160,605
Coal mining	45,518	34,976
Tin mining and smelting	24,700	29,550
Nickel mining and smelting	13,100	23,131
Railroads	15,162	9,883
Other	15,418	8,860
Total	246,356	267,005

In 1983, exports of coal from Sumatra to the Republic of Korea, Japan, Malaysia, and Vietnam totaled 283,773 tons while exports of coal from East Kalimantan to the Republic of Korea, Japan, and the Philippines totaled 149,840 tons.

As a result of a 1-year delay in completion of the Bukit Asam coal expansion project, Indonesia was expected to import about 1.5 million tons of steam coal from Australia during 1984-85 for consumption by the Suralaya powerplant in West Java, which was scheduled to start operation in February 1985.

In early 1984, a 200-ton-per-hour washery was completed and delivered to P.N. Tambang Batubara at the Ombilin Mine by the Noyes Bros. Pty. Ltd. of Australia. The coal washery consists of conveyors, bins, and ancillary equipment, which include coal trucks, 4-wheel-drive vehicles, and front-end loaders.

Coal exploration in Kalimantan by the seven foreign contractors continued to make progress. According to industry sources, two additional discoveries were made by the contractors. P.T. Arutmin Indonesia discovered a 150-million-ton deposit in a coal concession area near Banjarmasin, South Kalimantan, and P.T. Utah Indonesia found a 60-million-ton deposit in the coal concession areas near Tandjung and Tanahgrogot of East Kalimantan. Production of coal from these areas reportedly was planned to begin in 1986.[14]

Petroleum and Natural Gas.—Production of crude petroleum declined to the lowest level since 1972 because of further softening of world oil prices and the continued imposition of production quotas by OPEC. During 1984, the output of crude petroleum dropped to an average of 1.28 million barrels per day from 1.34 million barrels per day (revised) in 1983. However, production of natural gas continued to increase resulting from the increased utilization of natural gas for LNG production. The output of natural gas totaled 1.5 trillion cubic feet.

Under an agreement signed by the 13 members of OPEC in October, the quota for Indonesia's daily output of crude petroleum will be reduced further from 1.3 million barrels per day to 1.19 million barrels per day beginning in January 1985.

The slowdown of Indonesia's oil industry was evidenced by a decline in exploratory wells drilled as well as exploration expenditures in 1984. According to industry sources, the number of exploratory wells dropped to about 240 from 264 in 1983, while foreign oil companies spent only about $900 million for exploration compared with $1.1 billion in 1983. In 1984, PERTAMINA, the state-owned oil company,

signed only two production-sharing contracts with foreign companies. The two companies were British Petroleum Development Ltd. and Podena Shell BV. British Petroleum was expected to spend $60 million for exploration in the Merangin block near Jambi in South Sumatra, and Podena Shell plans to spend $110 million for exploration in the Podena block onshore and offshore Irian Jaya.[15]

In March, P.T. Caltex Pacific Indonesia (CPI), the largest foreign contractor in Indonesia, brought on-stream three new oilfields in Central Sumatra. The initial production of Buena, Dusun, and Pusaka Oilfields was 15,000 barrels per day, 7,000 barrels per day, and 20,000 barrels per day, respectively. There are 24 wells in these 3 oilfields. The crude petroleum produced from these wells was connected by a pipeline to the export terminal at Dumai. In July, an offshore oilfield—Lalang, in Bengkalis District of Rian Province—was officially opened. The Lalang Oilfield reportedly was producing 35,000 barrels per day of crude oil.

Several oil and gas deposits were discovered in Indonesia. PERTAMINA reportedly struck an oil and gas reserve at the West Kandanghuar No. 1 exploratory well, about 47 kilometers west of the Jatibarany Oilfield in northwest Java. The exploratory well was flowing at a rate of 1,300 barrels of crude oil and 3 million cubic feet of natural gas per day. PERTAMINA also discovered an important oil and gas deposit in its Nibung Barat No. 2 exploratory well near Bunyu Island in East Kalimantan. CPI, the joint venture of Standard Oil Co. of California and Texaco Inc., discovered four oil wells near its producing Duri Oilfield in Central Sumatra and two wells northwest of the Giant Minas Field in Central Sumatra.

In August, Kodeco of the Republic of Korea reportedly struck a commercially feasible oil and gas reservoir in the offshore area of Madura, about 3 kilometers north of Sepulu Island in East Java after more than 3 years of exploration. According to Kodeco, the Madura Oilfield has an estimated reserve of 120 million barrels of crude oil, of which 22 million barrels are exploitable, and 1.3 trillion cubic feet of gas, of which 401 billion cubic feet are exploitable. Kodeco reportedly has invested over $66 million on the exploration, planned to spend an additional $22 million to start production at a rate of 10,000 to 15,000 barrels per day of crude oil in 1985, and is expected to spend $226 million for production of natural gas at a rate of 100 to 150 million cubic feet per day of gas in 1987.[16]

In February, the expansion program of the Dumai refinery in Central Sumatra was completed. The Dumai hydrocracker has an annual capacity of 198,000 barrels per day of crude oil. The Dumai refinery reportedly was not yet operational because of technical problems, which were expected to be resolved during the test run in 1984.

In January, the fifth train was completed and brought on-line at the Arun LNG plant in Aceh. The annual capacity of the Arun plant was raised to 7.5 million tons of LNG. In August, a $300 million contract was awarded to C. Itoh & Co. Ltd. and Japan Gasoline Co. by PERTAMINA to build the sixth LNG train with an annual capacity of 1.3 million tons of LNG at Arun in Aceh, North Sumatra. The sixth train was scheduled for completion in November 1986. The production of LNG from the sixth train will be exported to the Republic of Korea.

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[2]Where necessary, values have been converted from Indonesian rupiahs (Rp) to U.S. dollars at the rate of Rp1,000 = US$1.00.
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[4]Metal Bulletin (London). No. 6886, May 11, 1984, p. 13.
[5]U.S. Embassy, Jakarta, Indonesia. State Dep. Telegram 19886, Nov. 16, 1984.
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[13]Kompas (Jakarta). Aug. 27, 1984, p. 12.
[14]International Mining. June 1984, p. 50.
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[16]ANTAR News Bulletin (Jakarta). Aug. 24, 1984.

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